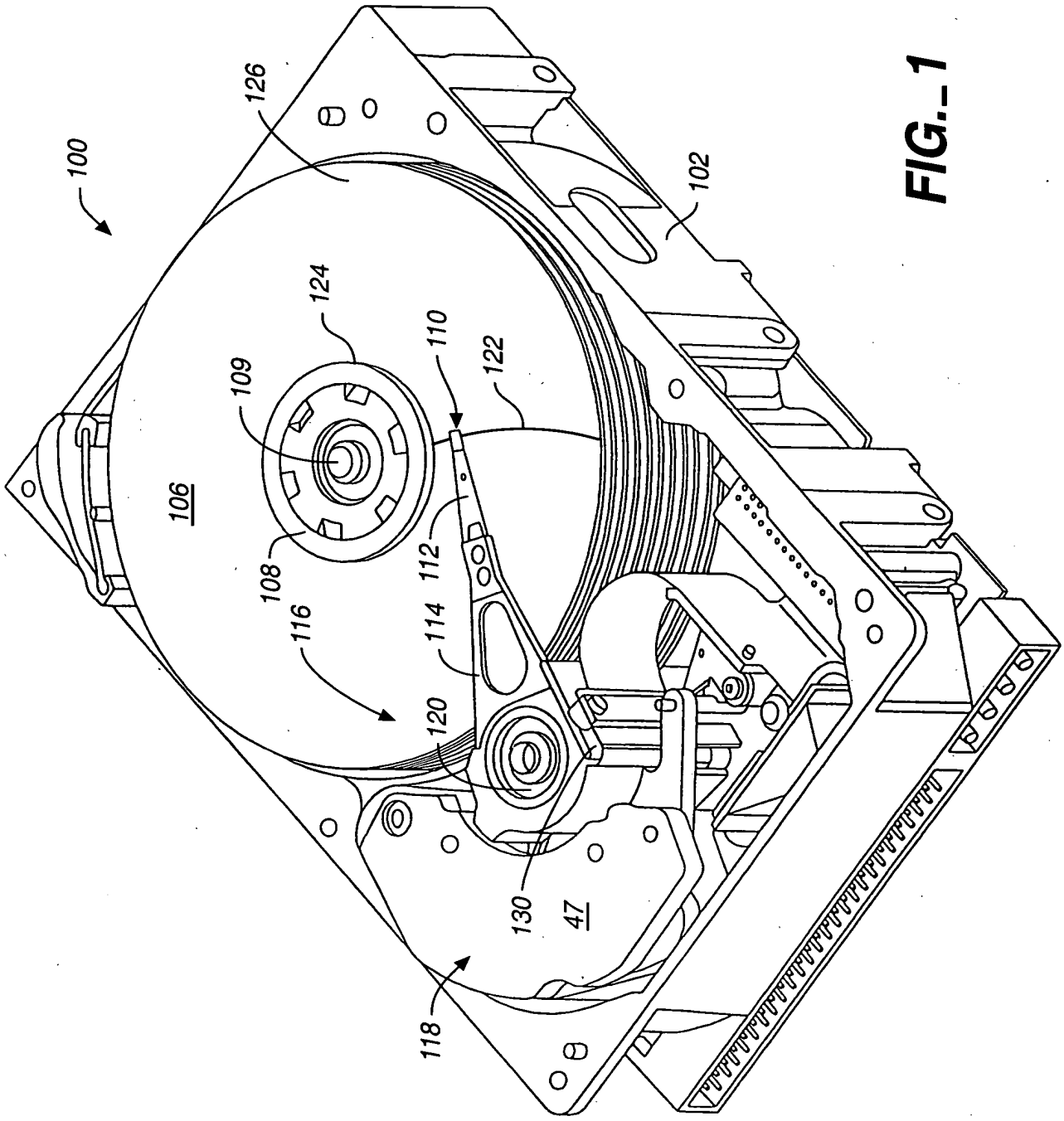

FIG._1

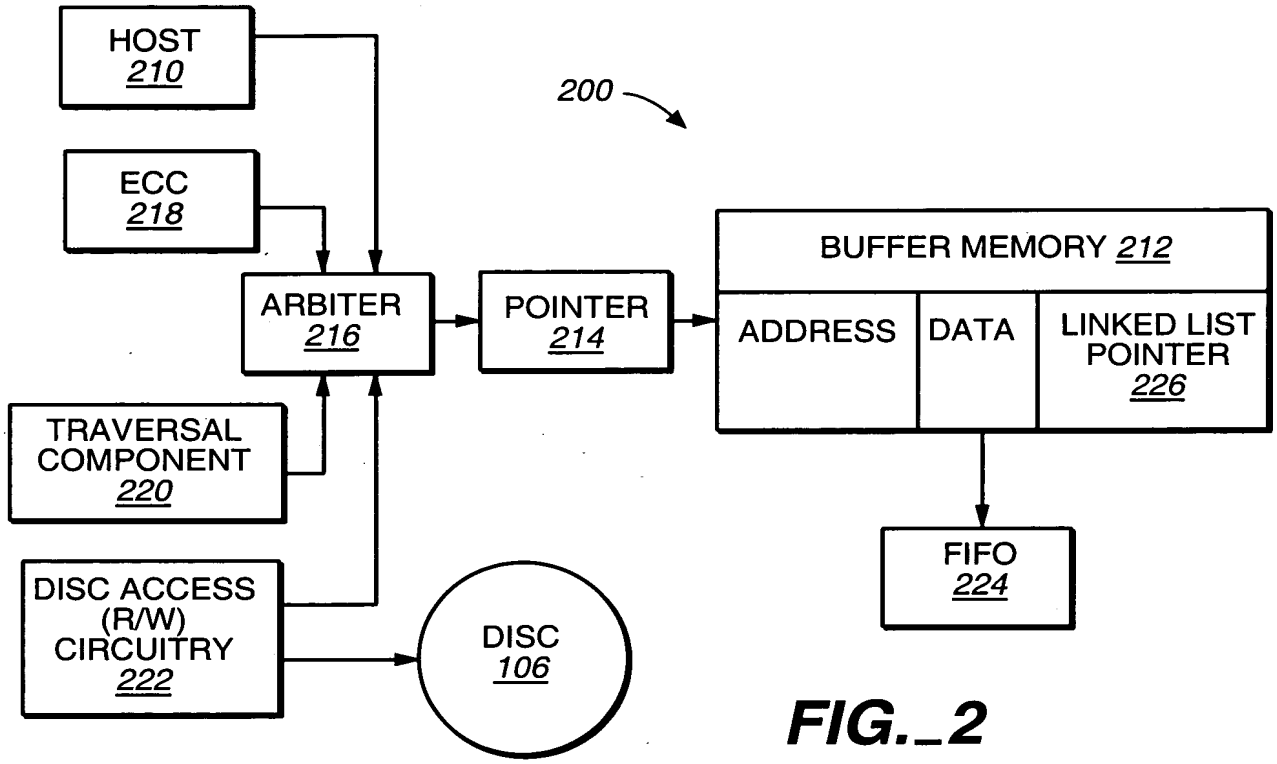
HOST
210
200
ECC
218
BUFFER MEMORY 212
ARBITER
216
POINTER
214
ADDRESS
DATA
LINKED LIST
POINTER
226
TRAVERSAL
COMPONENT
220
FIFO
224
DISC ACCESS
(R/W)
CIRCUITRY
222
DISC
106

FIG._2

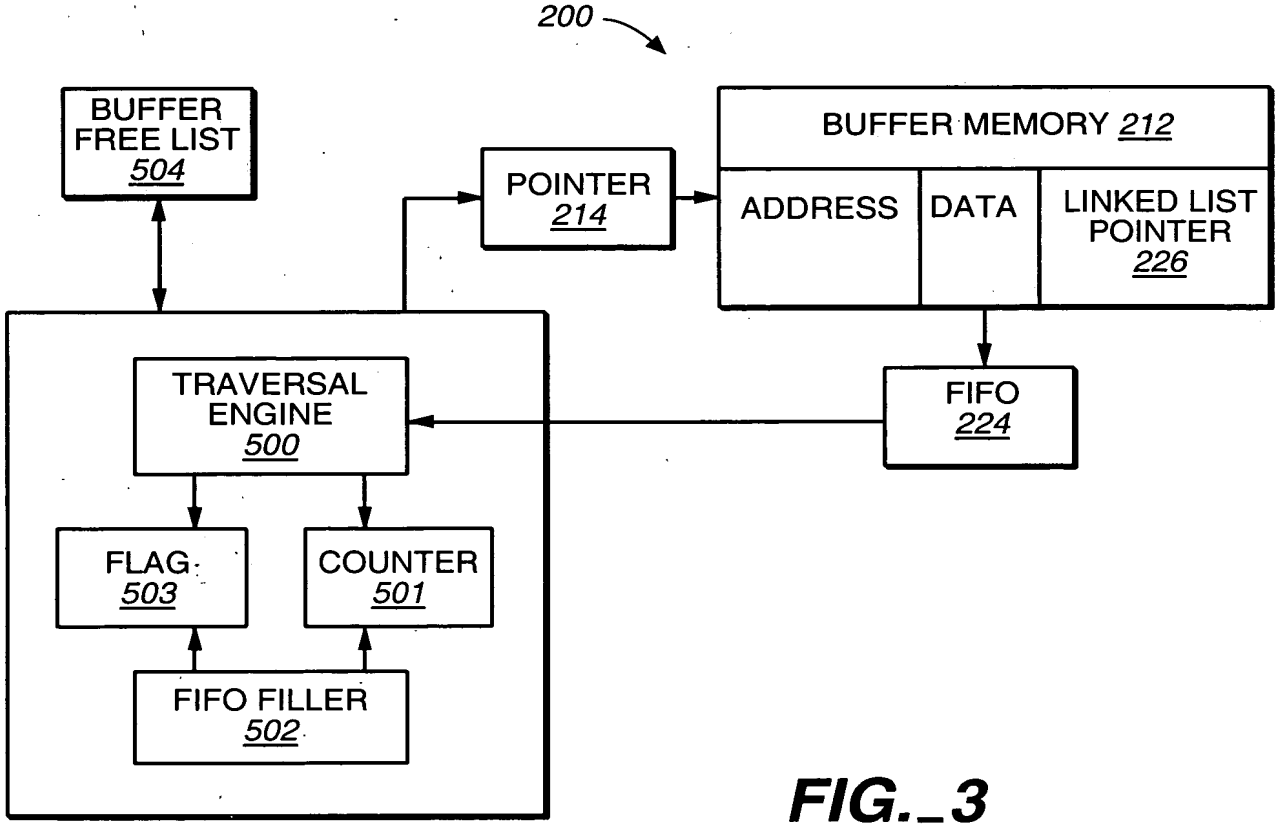
200
BUFFER
FREE LIST
504
BUFFER MEMORY 212
POINTER
214
ADDRESS
DATA
LINKED LIST
POINTER
226
TRAVERSAL
ENGINE
500
FIFO
224
FLAG
503
COUNTER
501
FIFO FILLER
502

FIG._3

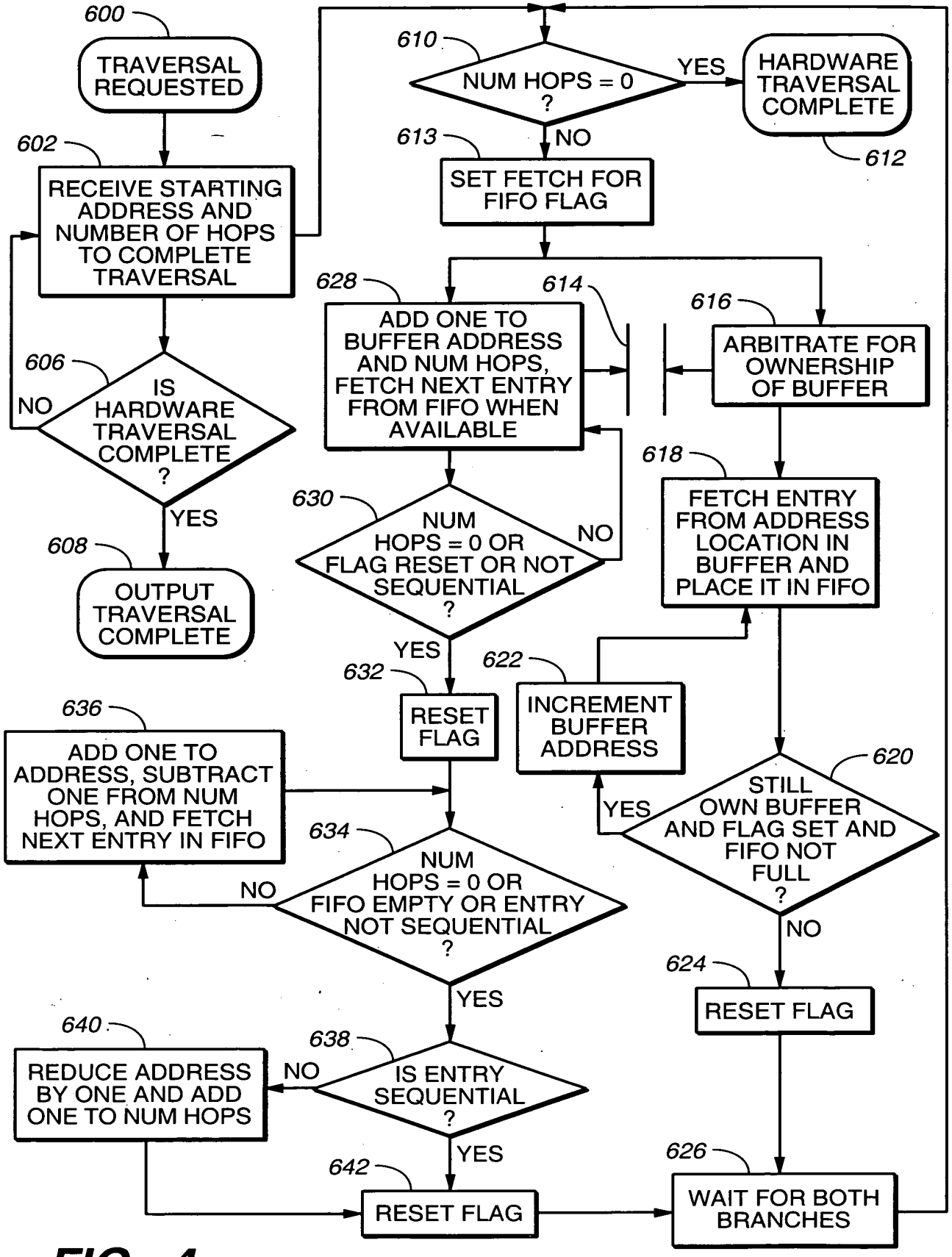
600
TRAVERSAL REQUESTED
602
RECEIVE STARTING ADDRESS AND NUMBER OF HOPS TO COMPLETE TRAVERSAL
606
IS HARDWARE TRAVERSAL COMPLETE ?
NO
YES
608
OUTPUT TRAVERSAL COMPLETE
610
NUM HOPS = 0 ?
YES
HARDWARE TRAVERSAL COMPLETE
612
NO
613
SET FETCH FOR FIFO FLAG
628
ADD ONE TO BUFFER ADDRESS AND NUM HOPS, FETCH NEXT ENTRY FROM FIFO WHEN AVAILABLE
614
616
ARBITRATE FOR OWNERSHIP OF BUFFER
618
FETCH ENTRY FROM ADDRESS LOCATION IN BUFFER AND PLACE IT IN FIFO
630
NUM HOPS = 0 OR FLAG RESET OR NOT SEQUENTIAL ?
NO
YES
632
RESET FLAG
622
INCREMENT BUFFER ADDRESS
620
STILL OWN BUFFER AND FLAG SET AND FIFO NOT FULL ?
YES
NO
624
RESET FLAG
636
ADD ONE TO ADDRESS, SUBTRACT ONE FROM NUM HOPS, AND FETCH NEXT ENTRY IN FIFO
634
NUM HOPS = 0 OR FIFO EMPTY OR ENTRY NOT SEQUENTIAL ?
NO
YES
640
REDUCE ADDRESS BY ONE AND ADD ONE TO NUM HOPS
638
IS ENTRY SEQUENTIAL ?
NO
YES
642
RESET FLAG
626
WAIT FOR BOTH BRANCHES

FIG._4